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ITD Directive – Priority Action ´c´– Proposal for Deployment Plan in Finland

DEPLOYMENT OF ROAD SAFETY-RELATED INFORMATION SERVICE

Kimmo Ylisiurunen, Arto Luoma

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Keywords: ITD Directive, Priority Actions, Deployment

Abstract

European Commission has prepared a regulation for Directive 2010/40/EU of the European Parliament and of the Council related to data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users. Finnish authorities, the Ministry of Transport and Communications (MINTC) and Finnish Transport Agency (FTA) have prepared a proposal for deployment plan to fulfil the requirements set by the Commission.

As a result of the work done for the deployment plan the operational model for Finland and the road map for the deployment are proposed in the report. Additionally, research and deployment needs are described together with the projects and pilots planned to enable well managed and smooth launch of services concerned. The road map is drawn to help in timing of the activities to ensure successful deployment on given schedule.

Kimmo Ylisiurunen, Arto Luoma: Älyliikennedirektiivin mukaisten Liikenteen turvatietopalvelujen toteutus Suomessa. Liikennevirasto, liikenteen palvelut -osasto. Helsinki 2014. Liikenneviraston tutkimuksia ja selvityksiä 4/2014. 30 sivua ja 2 liitettä. ISSN-L 1798-6656, ISSN 1798-6664, ISBN 978-952-255-417-8.

Avainsanat: tieliikenne, tiedotus, älyliikenne, direktiivit, turvallisuus, ITS

Tiivistelmä

Euroopan Komissio on valmistellut sääntelyn ns. Älyliikennedirektiivin 2010/40/EU ensisijaiselle toimenpiteelle koskien maksuttomia liikenteen turvallisuuskriittisiä tieliikennetiedotteita. Suomen viranomaiset, liikenne- ja viestintäministeriö ja liikennevirasto ovat valmistelleet ehdotusta kyseisen sääntelyn mukaisen palvelun käyttöönottamiseksi Suomessa.

Työn tuloksena esitetään ehdotus toimintamallista palvelun toteuttamiseksi ja toteuttamisen vaatimien toimenpiteiden käynnistämiseksi ja ajoittamiseksi. Lisäksi kuvataan ensisijaiset kehitys ja tutkimustarpeet palvelun toteuttamiseksi suunnitellussa laajuudessa ja laatutasolla.

Kimmo Ylisiurunen, Arto Luoma: ITS-direktivet, prioriterad åtgärd ´c´ - förslag till genomförande i Finland. Trafikverket, avdelningen trafiktjänster Helsinki 2014. Trafikverkets undersökningar och utredningar 4/2014. 30 sidor och 2 bilagor. ISSN-L 1798-6656, ISSN 1798-6664, ISBN 978-952-255-417-8.

Nyckelord: ITS-direktivet, prioriterade åtgärder, genomförande

Sammandrag

Europeiska kommissionen har berett en reglering av de prioriterade åtgärderna i direktivet om intelligenta trafiksystem 2010/40/EU gällande kostnadsfria, säkerhetskritiska vägtrafikmeddelanden. De finska myndigheterna, kommunikationsministeriet och Trafikverket har berett ett förslag om att ta i bruk en tjänst i Finland i enlighet med regleringen.

Arbetet har resulterat i ett förslag till verksamhetsmodell för att ta i bruk tjänsten samt påbörja och tidsbestämma de åtgärder som genomförandet kräver. Dessutom beskrivs de prioriterade utvecklings- och forskningsbehov som behövs för att ta i bruk tjänsten i planerad omfattning och på planerad kvalitetsnivå.

Foreword

The project was chaired by the Ministry of Transport and Communications and mostly facilitated by the Finnish Transport Agency – responsible for the efficient functioning of the traffic system as a whole, including the objective to ensure and improve transport safety. The project was set up in order to prepare Finnish authorities to deploy Finnish actions needed for the road safety-related information service.

The project is part of the larger development initiative in FTA, by which the concerned ITS Directive's priority action ´c´ is taken care also in development of FTA's Traffic Management Centre's operations. The results of the project are used as a proposal for the Finnish model to set up national service for priority action ´c´.

The report was produced under guidance of steering group presented by Seppo Öörni (chairman) from the Ministry of Transport and Communications and Kari Hiltunen (vice-chairman), Eetu Karhunen, Risto Kulmala, Sami Luoma from the Finnish Transport Agency. The planning work and secretary duties were carried out by Infotripla ltd.

In addition to steering group work, some relevant stakeholders were interviewed and took part in a planning work shop in order to enable innovative approaches in deployment.

Helsinki January 2014

Finnish Transport Agency
Traffic Services

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1 Introduction

European Commission has launched a delegate act related to the Specifications for Priority Action (c) of ITS Directive (2010/40/EU). The priority action ´c´ focuses on specifications for "Data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users" as a 'service'.

The delegate act document explains and defines the specifications for 'service' by minimum set of road safety related categories, minimum information content, minimum requirements for the provision of the 'service' and conformity assessment and obligations linked to the deployment of the 'service'. Also reporting rules, the way to entry into force and background information are described.

The specification document entered into force in European Commission on September 2013. The delegate act document is available in http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32013R0886:EN:NOT.

Following the delegate act of Commission, Finnish authorities activated the deployment planning project. The prepared proposal for the deployment plan of priority action 'c' is to prepare Finnish authorities to fulfil the specification requirements for the ´service´ in Finland.

The proposal for the deployment plan in Finland introduces priority action ´c´ principles, proposed Finnish operational model, proposed guidelines for deployment, identified development needs and piloting approaches and proposed deployment road map.

FTA and MINTC has actively been participating in working groups aiming at to provide specifications for priority actions of ITS Directive – priority action ´c´ being one of those. Thus, Finnish transport authorities are well prepared to start more detailed preparation for national adaptation of specifications.

Moreover, the Ministry of Transport and Communications has launched a second generation strategy for Finnish ITS in June 2013. ITS directive actions, including the ´service´ concerned here, are well in line with new strategy work – and vice versa.

The Finnish Transport Agency (FTA) is a government agency operating under the Ministry of Transport and Communications (MINTC), and it is responsible for operating and managing the public road, rail and maritime transport networks, and thereby maintaining and developing the standard of service in their networks. Hence, the main responsibilities related to the priority action ´c´ are allocated to FTA.

2 ITS Directive, priority action ´c´

2.1 ITS Directive

The European Commission and Council have adopted the ITS Directive (2010/40/EU) in July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport.

The ITS Directive establishes a framework in support of the coordinated and coherent deployment and use of Intelligent Transport Systems (ITS) within the Union, in particular across the borders between the Member States, and sets out the general conditions necessary for that purpose.

One of the first activities within ITS Directive deployment is the development of specifications for identified priority actions. These priority actions are:

a) the provision of EU-wide multimodal travel information services;
b) the provision of EU-wide real-time traffic information services;
c) **data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users;**
d) the harmonised provision for an interoperable EU-wide eCall;
e) the provision of information services for safe and secure parking places for trucks and commercial vehicles;
f) the provision of reservation services for safe and secure parking places for trucks and commercial vehicles.

This document for the Finnish deployment plan concentrates on the priority action c) for road safety related information.

The ITS Directive and Action Plan documentation is available in http://ec.europa.eu/transport/themes/its/road/action_plan/.

2.2 Priority action ´c´ for road safety-related information

2.2.1 The Nature of Priority Action ´c´

European Commission delegated an act and later a regulation (EU) no. 886/2013 supplementing ITS Directive with regard to data and procedures for the provision, where possible, of road safety-related minimum universal traffic information free of charge to users.

The nature of the priority action ´c´ could be summarised by a direct quotation from the regulation document:

> *"Road safety-related traffic data are essential for the provision of road safety-related minimum universal traffic information. They are collected and stored by public and/or private operators and service providers. In order for these data to be made easily available for exchange and re-use for the provision of information services, public and/or private road operators and service providers should make them accessible through individual access points or make sure that they are accessible through national access points set up and managed by the Member States. These national access points can take the form of a repository, registry, web portal or similar."*

2.2.2 Road Safety-related Information Content

The content of the road safety-related information service consist of events and conditions of road network. As stated in specifications, at least one of the following categories shall be deployed:

a) temporary slippery road;
b) animal, people, obstacles, debris on the road;
c) unprotected accident area;
d) short-term road works;
e) reduced visibility;
f) wrong-way driver;
g) unmanaged blockage of a road;
h) exceptional weather conditions.

Each events or conditions should be made available with explanatory information of their location, category of event or condition and driving behaviour advice (when appropriate).

2.2.3 Focusing on TERN in Europe

The given regulation is focusing on Trans-European Road Network (TERN). Each member state will designate sections of the Trans-European road network where traffic and safety conditions require the deployment of the road safety-related minimum universal traffic information service.

2.2.4 Stakeholders involved and their responsibilities

Following roles and main responsibilities are set by specification for national stakeholders.

> **Member state**
> The responsible organisation of the Member State (most likely ministry responsible for traffic) will communicate deployment plan, national access point, yearly progress reports etc. to Commission.

Independent national body for assessment
An impartial and independent national body competent to assess whether the requirements are fulfilled in national level is nominated by the member state. Yearly declaration will be given by the body to national authorities and random inspections to declarations will be made and reported.

Public and private road operators, service providers and broadcasters
Organisations dedicated to traffic information provide their identification details and a description of the information service they provide, and submit a declaration of compliance with the requirements set. Immediate update of declarations of compliance is made following any change in the provision of their service.

2.2.5 Other requirements and guidelines

Specification includes a set of requirements and guidelines, of which some are worth of mention shortly in this proposal for the Finnish national deployment planning - to ease understanding of following chapters of the proposal.

"The data shall be available in the DATEX II (CEN/TS 16157) format or any fully compatible and interoperable with DATEX II machine-readable format through an access point."

"The data shall be accessible for exchange and re-use by any user of road safety-related minimum universal traffic information on a non-discriminatory basis."

"The information service shall be provided in such a way as to ensure the widest reach of end users concerned by the given event or condition."

"The information service shall be made available by public and/or private road operators and/or service providers and/or broadcasters where possible free of charge to end users."

"Public and private road operators and service providers shall collaborate to harmonize the presentation of the content of the information provided to end users"

2.2.6 Deployment steps and schedule

Reporting
The regulation and its specifications entered into force in early autumn 2013. The main reporting and communication rules for member state national level are:

First 12 months
- to communicate national body for inspection (i.e. nominated organisations)
- to communicate the existing or envisaged national access point (i.e. deployment plan details)
- progress report on deployment (i.e. report on implementing the service, quality issues, results of assessment of compliance and changes in plans)

Every next 12 months

- progress report on deployment (i.e. report on implementing the service, quality issues, results of assessment of compliance and changes in plans)

Deployment

Deployment of the regulation is due to following scheduling principles (after entering into force):

At the moment of deployment

- for any new services not existing in the beginning

In 24 months

- for services already existing

3 Finnish Operational Model

The proposal for the Finnish operational model is planned to follow the regulation given by Commission and to adapt the model to suit the requirements and guidelines of national processes and practices.

The operational model is described here in general, followed by quality objectives and geographical coverage, stakeholders' roles, value chain reviews, identified innovations/product ideas and suggestions for development and piloting.

3.1 Operational Model in General

The national model for road safety-related information service is proposed to be based on improving the processes of existing information collection and delivery processes. Traffic information delivery processes of the Finnish Transport Agency form the basis for the deployment. The delivery processes will be enhanced by contracting 3rd party stakeholders for traffic information processes in the future.

The existing information delivery process is based on several notifications provided by FTA's TMCs. One of the existing notifications is called "preliminary notification for traffic", which is a good basis for the road safety-related information service. The notification terms used in traffic information delivery shall follow the existing process to ease the use of information. Thus the road safety-related information service will be included to existing preliminary notification and its processes. Road safety-related information service will improve the quality of notifications by intensive detection processes of events and conditions on selected road sections. Thus, investments will be targeted to fund these selected high level, intensive detection road sections. Additionally, it means that priority action ´c´ is deployed in those sections on quality levels set. Adoption of road safety-related information service will also expand the use of end user observations by which new set of notifications will be launched to information users.

Deployed activities on selected road sections will most likely change the traffic incident situation on deployed sections and, due to improved situation, will lead to re-planning of targeted road sections. This re-planning will be made in yearly basis.

Based on the analysis of existing traffic information services, the existing traffic incident detection, information collection and delivery processes already include features to ease the deployment of road safety-related information services. The main elements and characteristics are as follows:

- FTA's Traffic Management Centres (TMCs) are providing so called "preliminary notification for traffic" based on road accident related preliminary information, which is close to the targeted method of the road safety-related information service. Also the content of information in these "preliminary notification for traffic" is close to those in the specifications.
- Information collected and detected for "preliminary notification for traffic" to/by the national Emergency Response Centres (ERC) is available and already used via a real-time interface.

- Other events or conditions of the priority action ´c´ specifications are not yet used for "preliminary notification for traffic". However, more assured "traffic notifications" are made related to such other events or conditions. A useful set of data collection and detection systems are available as such or at least to be used as a good starting point for the targeted services.
- Only the event ´wrong-way driver´ is not implemented at the moment in the notifications.
- TMC's traffic information is delivered to existing distribution channels, including e.g. broadcasters and external service providers. FTA is also providing a real-time delivery of notifications via Digitraffic service interfaces.
- Notification delivery in Digitraffic is free of charge and on a non-discriminatory basis to any organisation willing to use it.
- Notwithstanding existing structures and processes in traffic information notifications, the strengthened co-operation with private sector is seen necessary and beneficial. Private sector stakeholders are well aware of the needs of the future traffic information sector and ready for co-operation with public sector to improve the national processes. Also FTA is already actively co-operating with the private sector in the domain of traffic information.

The existing traffic information delivery process (related to specification given to the road safety-related information service) is described in figure 1.

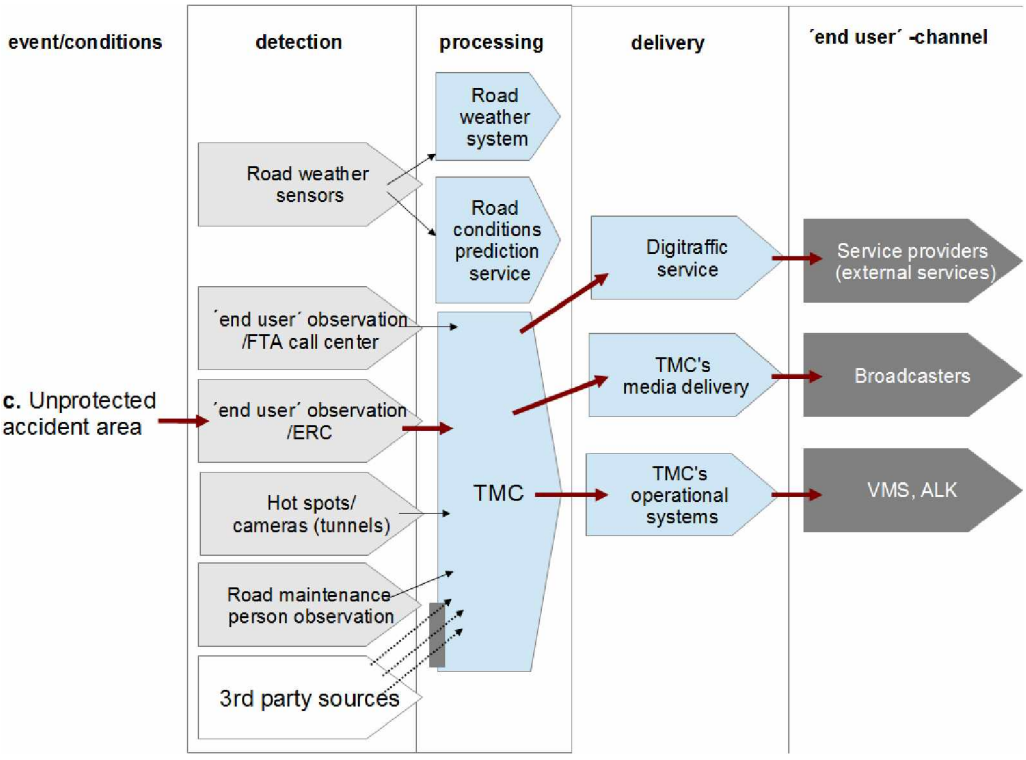

Figure 1. *Existing traffic information delivery process of FTA (simplified related to the road safety-related information service, processes for red arrows exists)*

The national model for road safety-related information collection and delivery requires modifications and improvements to existing processes.

The major challenges are due to the utilisation of end user observations, TMC's improvements in non-assured information delivery, improvements in detection systems and solutions, improvements in the latency of actions, etc.

To describe the proposal for the national model of priority action ´c´ following issues shall be presented:

- national quality objectives
- geographical coverage
- stakeholders roles and tasks
- events and conditions to be deployed
- value chains in general
- major associated processes
- identified improvements and piloting

3.2 National Quality Objectives

The quality objectives of the road safety-related information service are set as follows for minimum service levels. Due to the regulation, member state will define the criteria used and level of quality. The principle for the criteria defined is to provide service in high quality level on selected road sections of Trans-European Road Network (TERN) (see also 3.3).

Table 1. Quality requirements for safety related traffic information – minimum levels for Finnish model

Quality requirements for safety related traffic information - minimum levels

Safety related traffic events (for description, see next page)	Event/ condition	Quality parametres						
		Physical coverage of TERN	Event coverage	Availability	Timeliness (in 99% of events)	Latency (in 95% of cases)	Location Accuracy (in 95% of cases)	Error probability
a. Temporary slippery road	Condition	Relevant parts*		99%		<5 min	2-5 km	<10%
b. Animal/people/obstacles, debris on the road	Event	>2 500 veh/lane	**	99%		<8 min	2-5 km	<10%
c. Unprotected accident area	Event	>2 500 veh/lane	**	99%		<8 min	<1 km	<10%
d. Short term road works	Event	>2 500 veh/lane	99%	99%	<2 min	<5 min	<1 km	<5%
e. Reduced visibility	Condition	Relevant parts*		99%		<5 min	2-5 km	<10%
f. Ghost driver	Moving event	Relevant parts*	**	99%		<2 min	<1 km	<10%
g. Unmanaged blockage of a road	Event	>2 500 veh/lane	95%	99%		<8 min	<1 km	<10%
h. Extreme weather conditions	Event/ Condition	Relevant parts*	99%	99%		<5 min	2-5 km	<5%

* Physical coverage relates to only such sections or spots on the network, where the frequency and consequences of the events and/or conditions make the service socio-economically feasible

** Can be related only to events leading to a) a police report due to accident or other reason or b) a call to emergency centre or other PSAP

Notes:
Quality parametres differentiated by Event (E) and Condition (C)
Physical coverage = % of km covered by the service (E&C)
Event coverage = % of reported true events of the number of total events (E)
Availability = Percentage uptime which can be expected during the availability period (E&C)
Timeliness (of detection)= Delay between occurrence and detection of an event (E) or a safety-relevant change of condition (C)
Latency (of service provision) = Delay between detection an event (E) or a safety-relevant change of condition (C) and service provision
Location accuracy = Accuracy (km) in terms of location of an event (E) or a safety-relevant condition (C)
Error probability = % of false events per total reported events (E) or % of content provided outside stated quality boundaries (C)

To manage the quality in services continuous improvements for quality management and related assessment methods are needed. Organisations responsible for road safety-related information service will provide yearly declaration to national assessment body to confirm the quality of the service. To ensure the continuous quality level of the service specific quality assessment methods are needed.

3.3 Geographical coverage

Following the specifications given by Commission the targeted road sections in the Trans-European Road Network (TERN) are selected by the member state for the service. The Finnish selection was based on two main principles

1. TERN road sections that get regularly congested in Finland, sections with blue = at least 20% increase in travel time at least 150 h per year, sections with red = at least 50% increase. For both, the average annual traffic volume must be >2500 vehicle/lane
2. Traffic events and conditions considered per road sections may vary depending on traffic safety objectives and the consequences of the events

Based on the selection criteria the following road sections (table 2 and figures 2 and 3) are proposed to be facilitated by the events or/and conditions of the specification. More detailed road section list is available in annex 1 of this document.

Table 2. Proposed road sections for the service

Regularly congested road sections					
		Start point		End point	
(Road nr & road section)	Road	Section	Distance	Section	Distance
ROAD 1					
Kehä I – Veikkola	1	4	705	8	0
ROAD 3					
Kaivoksela – Herajoki	3	101	8744	110	6240
Iittala – Sääksjärvi	3	120	1059	134	5161
Myllypuro - Soppeenmäki	3	139	1823	139	5575
ROAD 4					
Tattarisuo – Lusi	4	103	1312	210	1625
ROAD 5					
Vehmasmäki – Päiväranta	5	156	2980	201	3335
ROAD 6					
Kesälahti - Parikkala	6	323	2085	332	5177
ROAD 7					
Östersundom -Länsimäentie	7	1	2689	3	0
Kotka – Hamina	7	29	1486	33	1260
ROAD 9					
Moisio – Jäkärlä	9	103	10	103	2170
ROAD 12					
Amuri – Alasjärvi	12	127	2401	201	3202
ROAD 45					
Käpylä – Riihikallio	45	1	3715	4	1412
ROAD 50					
Muurala – Länsisalmi	50	2	4474	8	2490
ROAD 51					
Katajaharju – Sundsberg	51	2	1378	7	2972
ROAD 101					
Keilaniemi – Pukinmäki	101	1	590	7	2103
ROAD 102					
Olari – Kauniainen	102	1	970	3	2660
ROAD 120					
Pitäjänmäki – Varisto	120	2	60	3	5260
ROAD 170					
Vartioharju – Itäsalmi	170	3	1090	5	2570

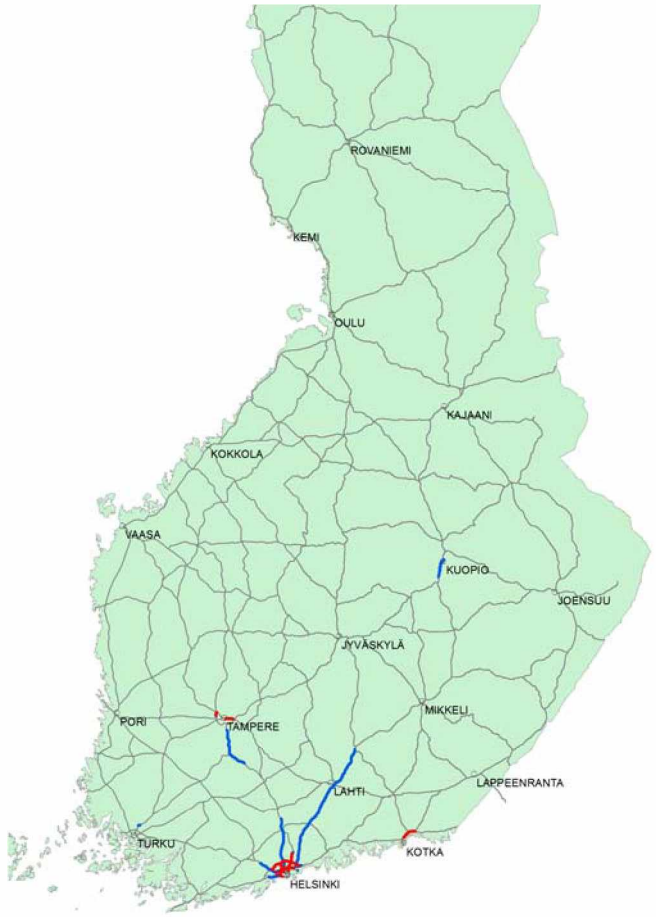

Figure 2. *Proposed road sections that get regularly congested in Finland, sections with blue = at least 20% increase in travel time at least 150 h per year, sections with red = at least 50% increase*

Figure 3. *Proposed road sections that get regularly congested in Uusimaa region, sections with blue = at least 20% increase in travel time at least 150 h per year, sections with red = at least 50% increase*

3.4 Stakeholders' roles and tasks

The national model for the road safety-related information service is suggested to be based on following organisation structure of Finnish authorities and co-operative organisations.

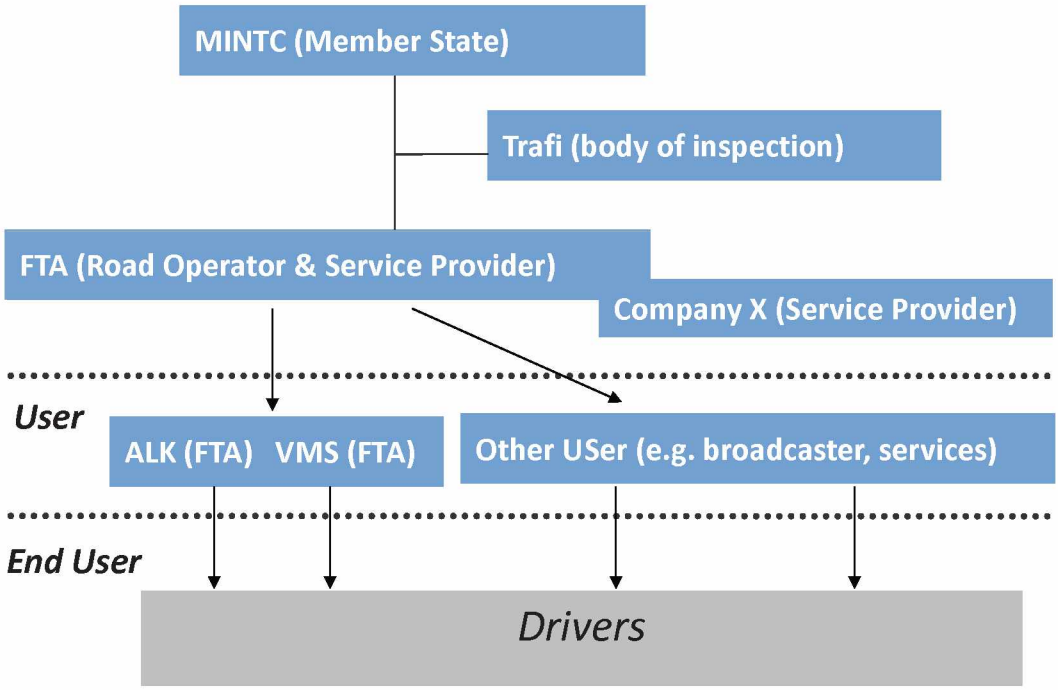

Figure 4. Finnish organisational model

The roles of stakeholders are:

- ***Member state*** responsibilities are taken by the Ministry of Transport and Communications (MINTC).

- The role of ***National body for assessment and inspection*** is given to Trafi – the Finnish Transport Safety Agency. Trafi is independent of traffic information processes at the moment.

- The role of ***Road Operator*** and ***Service Provider*** is taken by the Finnish Transport Agency (FTA), since it is (due to its national role in transport system) already responsible for promoting the efficient functioning of the traffic system as a whole and to ensure transport safety. FTA also operates the traffic management centres in Finland.

- ***Users*** (of the available data) are at least FTA's own systems like national traffic information portal "ALK" and their variable message signs (VMS) on the roads. ***Other Users*** are broadcasting companies and external traffic services utilizing information and traffic data available via technical interfaces.

3.5 Events and Conditions to be Deployed

Referring to the existing situation in Finland in traffic incident detection, data collection, information delivery and requirements set by Commission, a set of road safety-related information services are suggested to be deployed in sense of regulation given. Deployable events and conditions are:

a) temporary slippery road;
b) animal, people, obstacles, debris on the road;
c) unprotected accident area;
d) short-term road works;
e) reduced visibility;

g) unmanaged blockage of a road;
h) exceptional weather conditions.

If the event f) ´wrong way driver´ will be deployed as an information service in the future, it will be provided and applied as a road safety-related service at the moment of deployment.

Events and conditions proposed to be deployed are preliminary aligned to road sections (figure 5) based on the preliminary analysis of traffic accident statistics of five year period and on the capabilities of expand the FTA's TMC operations in co-operation with 3rd party contractors. The timing of any events and conditions to be deployed depends on the financial resources available on the national level. The most important factor for the deployment is the estimated road safety impact potential – also estimated on the road section level. The deployment plan will be specified by the help of more detailed safety impact analysis.

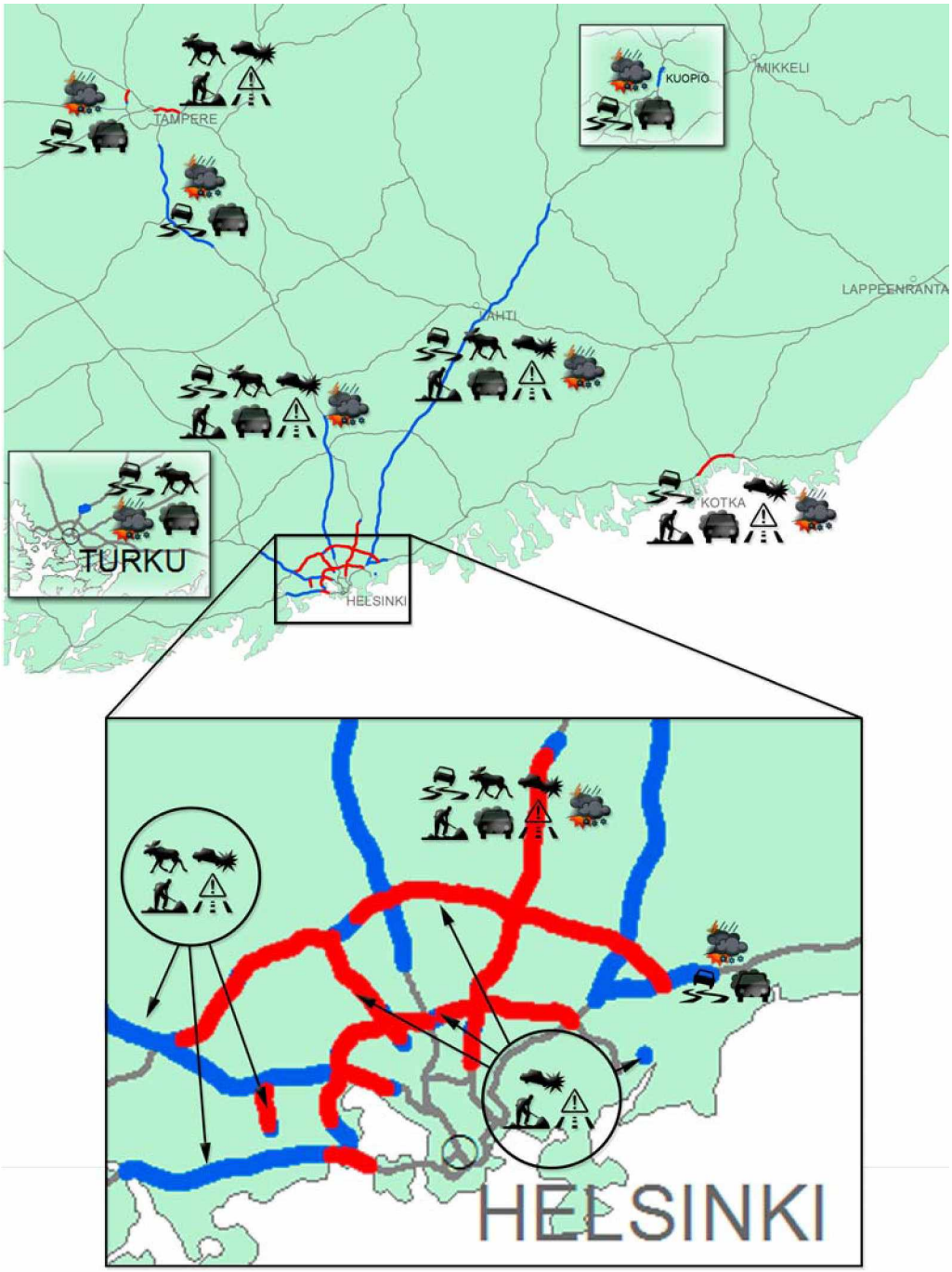

Figure 5. Events and conditions proposed preliminary aligned to road sections

The high level ideas for the alignment of events and conditions on road sections are described in annex 2. Events and conditions in each selected road sections are divided into 2 categories (the most potential impact and potential impact) on the basis of the estimated traffic safety impact on traffic accidents.

3.6 Value Chains

The potential value chains are evaluated and the planned value chain model is to be based on model where the core of the process is formed by FTA's TMC operations, which are expanded and supported by systems and services provided by private sector stakeholders via contracting.

The backbone of the suggested value chain is the TMCs' existing information collection and delivery system, from which the existing system is developed further to suit the requirements set for the service. Additionally, some 3rd party concepts will be developed to complete the model to the quality level set by national authorities. The overall value chain is illustrated in figure 6.

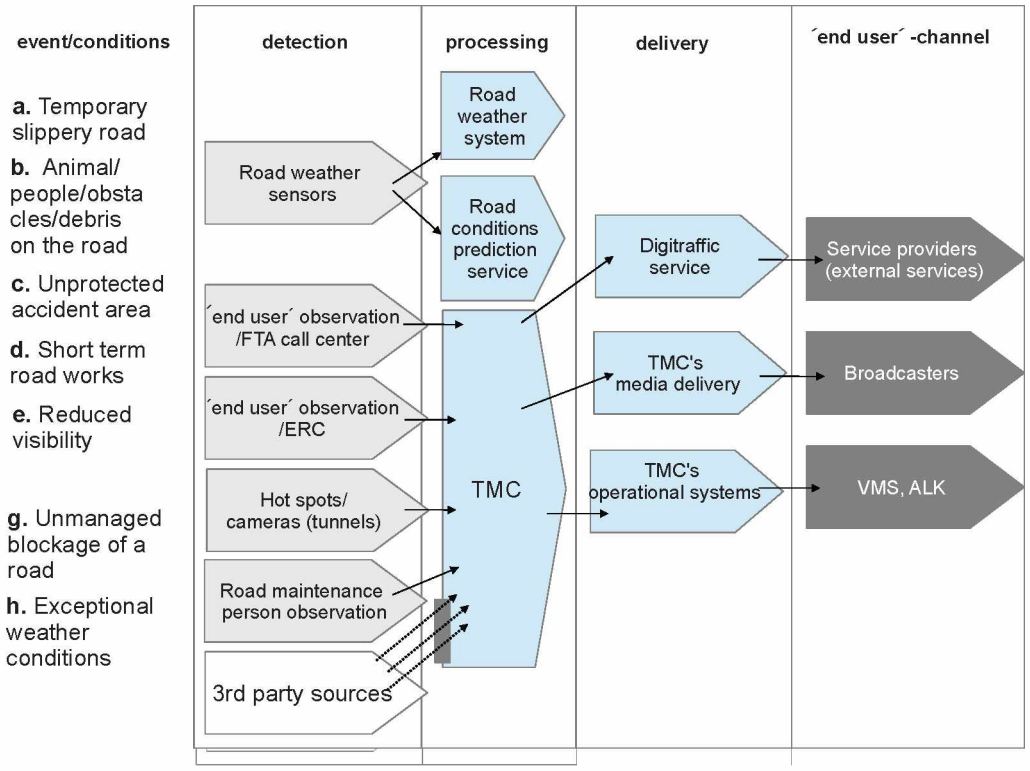

Figure 6. Value chain in high level

The opportunity to open processes more in the future, e.g. to a public private partnership (PPP) via co-operation with private ITS operator(s), is seen as a future potential step towards service level improvements. This kind of partnership would be established to seek even more productivity and comprehensiveness in services. It would also give a potential to develop new innovations and products to expand business opportunities of ITS sector companies and to be exported.

Additionally, the value chains per events and conditions of specifications, and related to existing and proposed operational model in Finland are described in more details in parallel development planning material.

3.7 Major associated processes

In addition to aforementioned plans for the Finnish model, some associated processes are on their way and need to be in line with proposed and planned operational model to suit the recommendations set by Commission for road safety-related information service in Finland. Some of those are highlighted here to enable the deployment of the service and to ensure the success of the scheduled deployment steps.

FTA's T-Loik development and its availability for deployment of the service or its sub-services
The planned implementation schedule of T-Loik (ongoing strategic development initiative of FTA to deploy modern traffic centre operation tools and facilities e.g. for data collection and delivery, targeted to be finalised by 2017) should be in line with road safety-related information service objectives.

Development of end user response and feedback operations in TMCs
TMCs have facilities to receive feedback and observations of drivers to be used as a part of the process to provide road safety-related information services. These facilities are not used efficiently at the moment for that purpose due to lack of resources and current task prioritisation at the TMCs. The process to use these observations needs improvements in TMCs traffic information processes and/or help from PPP models. New methods to record end user observations in a specified form are needed and shall be deployed to enable future increase in recordings and improvements in processes. The use of end user observations will forms to a new set of notifications will be launched to information users.

3.8 Identified improvements and piloting

In order to fulfil the requirements set by Commission for road safety-related information service several improvements needs were identified in order to deploy the Finnish operational model for the service.

Based on analyses and negotiations during the planning phase, it was obvious that improvements and new innovative ways to proceed are needed – most likely in co-operation with private sector stakeholders.

The current ideas for improvement and piloting are described in chapter 4.

4 Development needs and piloting

In order to set up the suggested Finnish operational model for the service a set of various development projects and pilots are needed especially to overcome the challenges identified.

The suggested set of development projects and pilots are:

A) Traffic Management Centre (chapter 4.1)
A.1: Planning and deployment of TMC's development objectives

B) Programmed Development Pilot Projects (4.2)
B.1: "Hairiohaavi": Piloting of intensive incident detection and information delivery in pilot spots
B.2: Road maintenance contractor's duties in road safety-related information service
B.3: Pilots for automatised incident alerts

C) Other development tasks (4.3)
C.1: Continuous improvements in quality management and assessment for road safety-related information services
C.2: Utilising end user observations for road safety-related information services

4.1 Traffic Management Centre (TMC)

4.1.1 Planning and deployment of TMC's development objectives (A.1)

The deployment of the road safety-related information services as set in Commission's specifications needs some improvements in the processes of FTA's Traffic Management Centres. The challenges especially deal with

- quick notifications of short-term events,
- notification process of foreseen congestion on the road network
- utilisation of end user observations via TMC's call centre facilities.

FTA's TMCs are planned to be utilised as the core of the road safety-related information service deployment in Finland. To ensure smooth and successful deployment, the processes of TMC information delivery operations should be improved. In order to improve processes the internal planning of duties, timing of tasks, and use of traffic management systems available will be analysed in detail and modifications needed will be planned, programmed into a development project and deployed. Both TMC's internal operations and technical systems and services used by TMC will be considered.

Timing: programming and planning 10/2013-02/2014, development in stages starting from 03/2014

4.2 Programmed Development Pilot Projects

Development projects are either prerequisites to deployment or seen as a providing flexibility, improved quality of the services, better productivity or even a way to identify totally new innovative ways to provide traffic information services in the future.

Ideas for development projects identified during the planning of Finnish model are presented shortly in following chapters and in more details in parallel development planning material.

Suggested programmed development pilot projects aim at scalable solutions from pilots to wider utilisation on road network. The preliminary plan to link pilot projects to road sections selected for the service is described in annex 2.

4.2.1 "Hairiohaavi": Piloting of intensive incident detection and information delivery in pilot spot (B.1)

In the "Hairiohaavi" pilot contracting is to be used in one or some road sections selected to deploy intensive traffic incident detection. Pilot would consist of automatic monitoring of road sections, interpretation of situation and incident alerts for information notifications. It also includes piloting for information delivery and end user access to road safety-related information services. Thus both FTA's own public (variable message signs and traffic information portal) and 3rd party (broadcasters, service providers) delivery channels will be used.

Setting up and testing far reaching co-operation possibilities with the ITS operator(s), offering services for incident detection, data collection, data analysis, information delivery and value added services, gives more knowledge of the public private co-operation models in the service. More productivity and comprehensiveness in services would be sought by this kind of partnership and piloting. It gives also an opportunity to search for new innovations and products to expand business and exporting opportunities of ITS sector companies.

The pilot is also open for ideas of other pilots in ITS (for detection, data gathering, delivery), to enable co-operation between solutions to rich content for road safety-related information services.

The preliminary idea for the pilot is to facilitate the pilot area by incident detective technology (e.g. cameras), methods to provide incident alerts for TMCs and delivery-ready notifications to be sent out as a road safety-related information service.

Timing: programming and planning 10/2013-02/2014, first specifications ready 03/2014, piloting 03-12/2014, system in operation from 01/2015.

4.2.2 Road maintenance contractor's duties in road safety-related information service (B.2)

Road maintenance contractors have responsibilities to provide information related to the incidents on a road sections they maintain. Contractors could be used more as a trusted partner for the detection of unplanned events and incidents on the road network. Especially they could provide valuable information related to events like *´Short term road works´* and *`Unmanaged blockage of a road´*. Additionally, contractors are key players to predict the duration of events and conditions affected by their road and winter maintenance duties.

The idea of the piloting initiative is to plan and specify how contractors could be facilitated by a systems or services to enable such an improvement in detection of situations in selected road sections. Implementing a pilot and functionalities in operation means the need for a set of activities for updates in contracts to enable data and information delivery from contractors.

Timing: Contract preparations in 2013-2014, pilot planning and specifications in year 2015, piloting starting from 01/2016, system in operation in 2016.

4.2.3 Pilots for automatised incident alerts (B.3)

The pilot for automatised incident alerts serves the objective to provide more automated processes for TMC's traffic notifications. Existing traffic management systems (e.g. tunnel systems, road weather systems) can be used to provide automated alerts and, thereby, processes for publishing notifications can be accelerated.

The idea of the piloting is to plan and specify how existing traffic management systems can be used more to support traffic information services. In addition to automated alerts of incidents detected, this could enable automated incident notifications in some cases, and even direct publishing as a notification to users.

Timing: Pilot planning and specifications in 2015, piloting starting from 01/2016, system in operation in autumn 2016.

4.3 Other Development Tasks

4.3.1 Continuous improvements for quality management and assessment methods of road safety-related information service (C.1)

The member state is responsible to monitor and report the quality of services provided. In addition to quality monitoring processes and reports also procedures for continuous assessment and improvement of quality should be made. In order to assess the current quality of the service assessment methods have to be planned and deployed by road operators and service providers (also including 3rd parties, if used).

The idea of the piloting initiative is to plan and specify quality parameters for continuous assessment of road safety-related service. Parameters and assessment methods will be tested in real service environment and developed instruments for self-assessment will be analysed. Evaluation is made against quality criteria and levels set as a target to service (see chapter 3.2).

Timing: Planning until 12/2013, development project 01/2014-06/2014, testing 06-12/2014, system in operation from 01/2015.

4.3.2 Utilising end user observations for road safety-related information service (C.2)

In order to provide information and warnings of the events and conditions specified by Commission, it is likely necessary to utilise end user observations as a part of the incident detection processes. FTA is running a Road User's Phone Service, but it is not used in large scale to acquire end user observations. Additionally, many different kinds of services existing and used in traffic already make it possible to give feedback and observations via the technical features in services. It is also assumed that these kinds of features will expand in the future. The end user, as a potential observer always present in traffic, gives a lot of potential to improve services, but also brings lot of challenges (e.g. quality of observations).

The idea of the piloting initiative is to plan and specify how end user observations could be used in an optimal manner in processes for providing future road safety-related service. The planned solutions will be tested in real service environment and the results will be analysed. Guidelines for the use of end user observation will be published.

Timing: Pilot planning and specifications until 12/2013, results available for testing in selected pilots during 2014, system in operation from 01/2015.

5 Deployment Roadmap

A preliminary deployment roadmap (figure 7) is proposed to steer and coordinate the development of needed improvements and pilots. The roadmap is also used for re-timing of actions if needed and especially to meet the schedule given by European Commission for deployment in the member states.

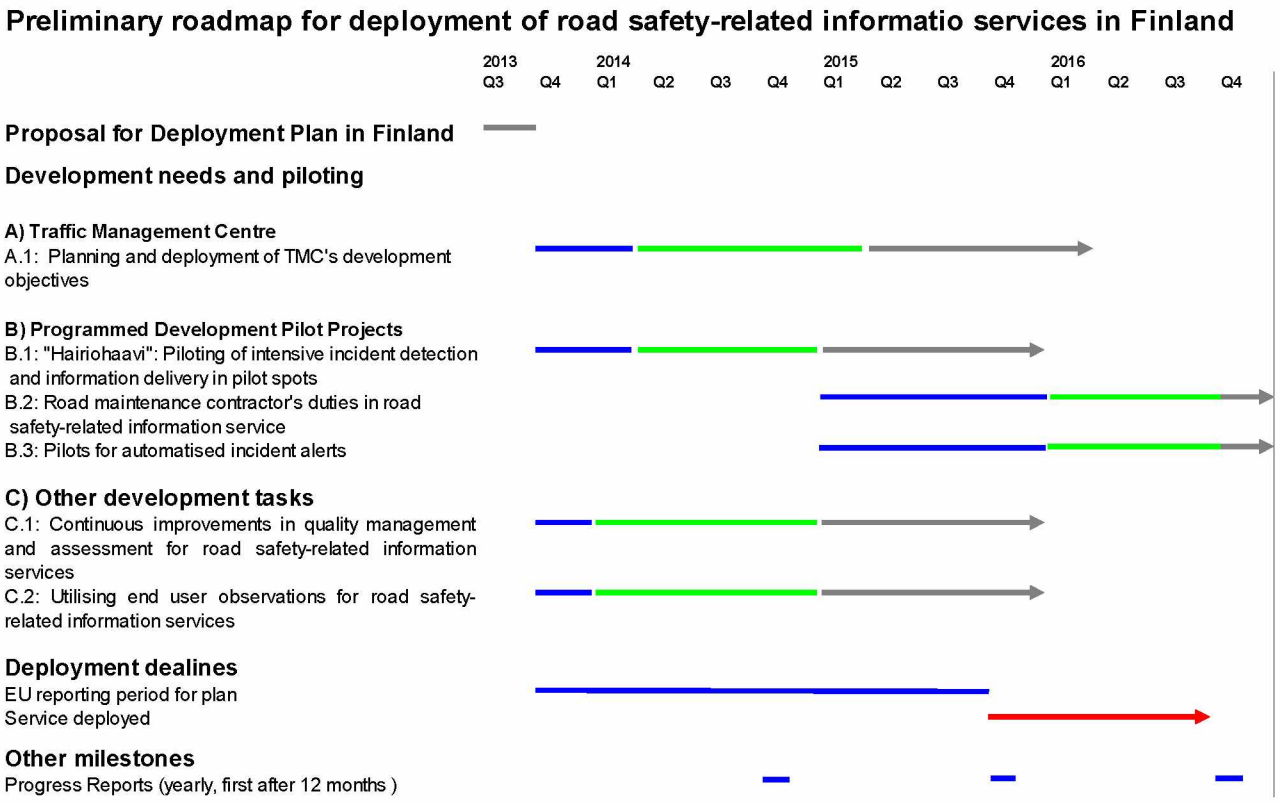

Figure 7. *The preliminary deployment road map for the Finnish road safety-related information service, 2013–2015*

6 Summary

The document describes a proposal for the deployment of the Finnish operational model related to the specifications for priority action (c) of ITS Directive (2010/40/EU).

The targeted service for "Data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users" is planned to be based on the modifications and improvements of processes in operation in Traffic Management Centres of the Finnish Transport Agency. The core is to expand and improve existing preliminary notifications already available in Finland. ". Road safety-related information service will improve the quality of notifications by intensive detection processes of events and conditions on selected road sections. The public process to provide such a high quality service for preliminary notifications is supported by contracting elements via PPP co-operation.

The proposed Finnish operational model consists of planned roles of stakeholders, high level principles in processes, quality criteria, selected road sections in TERN, events and conditions available and a set of improvements and development steps indicated.

The main development initiatives, to fulfil the requirements set by specifications given by Commission, deal with the utilisation of end user observations, TMC's improvements in non-assured information delivery, improvements in detection systems and solutions, and improvements in message latency.

In order to set up the Finnish operational model for the service, various development projects and pilots are proposed and described in order to overcome the challenges identified in deployment.

All the planned activities are included in a deployment roadmap in order to steer and coordinate the deployment steps and meet the schedules set-up by the European Commission for deployment in member states.

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ITS Directive, Directive 2010/40/EU of the European Parliament and of the Council on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport. July 7 2010, *source: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010L0040:EN:NOT*

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Road sections for road safety-related information services

Regularly congested road sections, 20% increase from median hour travel time at least 150 hours per year

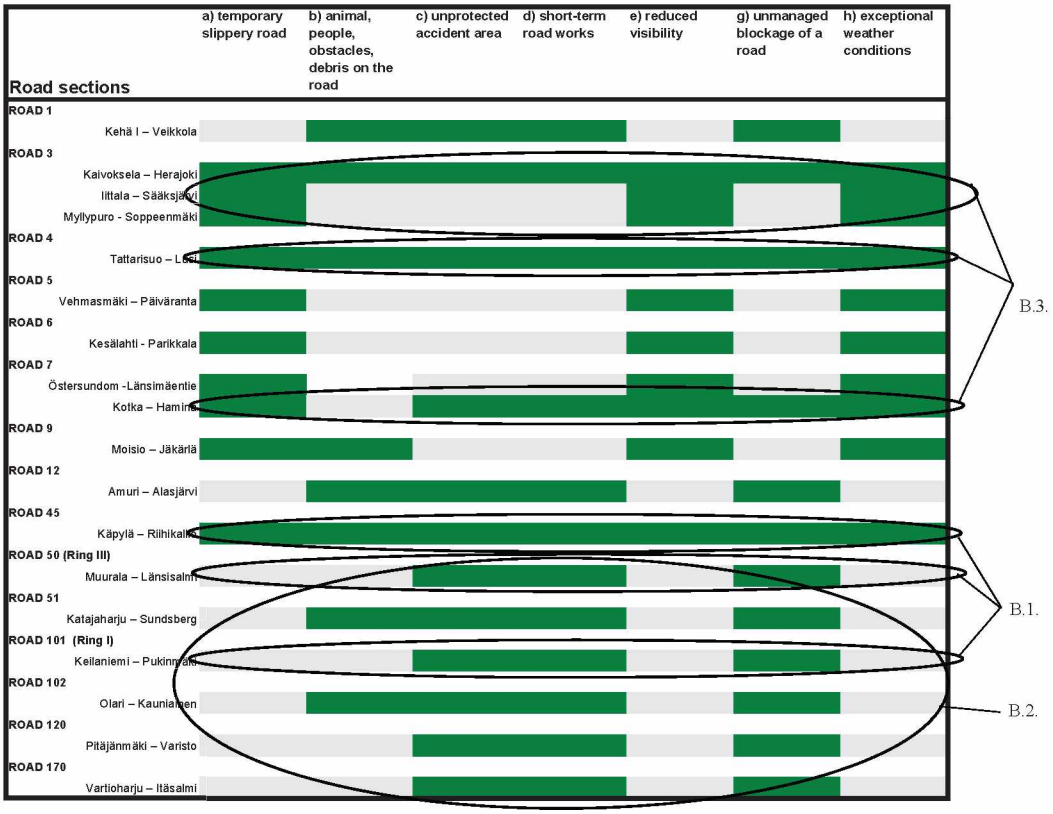
Regularly congested road sections	Start point			End point			
	Road	Road section	Distance	Road	Road section	Dis-tance	Direction
Kehä I - Kehä III	1	4	705	1	5	5993	1
Ämmässuo - Veikkola	1	7	0	1	8	0	1
Veikkola - Munkkiniemi	1	8	0	1	3	503	2
Kaivoksela - Klaukkala	3	101	8744	3	104	0	1
Myllypuro - Soppeenmäki	3	139	1823	3	139	5575	2
Sääksjärvi - Iittala	3	134	5161	3	120	1059	2
Herajoki - Kaivoksela	3	110	6240	3	101	8744	2
Järvenpää - Ahtiala	4	108	3381	4	202	3045	1
Lusi - Tattarisuo	4	210	1625	4	103	1312	2
Vehmasmäki - Päiväranta	5	156	2980	5	201	3335	1
Päiväranta - Vehmasmäki	5	201	3335	5	156	2980	2
Kesälahti - Parikkala	6	332	5177	6	323	2085	2
Kotka - Hamina	7	29	1486	7	33	1260	1
Östersundom -Länsimäentie	7	3	0	7	1	2689	2
Moisio - Jäkärlä	9	103	10	9	103	2170	1
Jäkärlä - Moisio	9	103	2170	9	103	10	2
Amuri - Alasjärvi	12	127	2401	12	201	3202	1
Alasjärvi - Amuri	12	201	3202	12	127	2401	2
Käpylä - Riihikallio	45	1	3715	45	4	1412	1
Riihikallio - Käpylä	45	4	1412	45	1	3715	2
Muurala - Länsisalmi	50	2	4474	50	8	2490	1
Länsisalmi - Muurala	50	8	2490	50	2	4474	2
Matinkylä - Sundsberg	51	5	110	51	7	2972	1
Espoonlahti - Katajaharju	51	6	2400	51	2	1378	2
Keilaniemi - Pukinmäki	101	1	590	101	7	2103	1
Pukinmäki - Keilaniemi	101	7	2103	101	1	590	2
Olari - Kauniainen	102	1	970	102	3	2660	1
Pitäjänmäki - Varisto	120	2	60	120	3	5260	1
Varisto - Pitäjänmäki	120	3	5260	120	2	60	2
Vartioharju - Mellunmäki	170	3	1090	170	3	4165	1
Itäsalmi - Vartioharju	170	5	2570	170	3	1090	2

Regularly congested road sections, 50% increase from median hour travel time at least 150 hours per year

Regularly congested road sections	Start point			End point			
	Road	Road section	Distance	Road	Road section	Distance	Direction
Keha I - Munkkiniemi	1	4	705	1	3	503	2
Myllypuro - Soppeenmäki	3	139	1823	3	139	5575	1
Kotka - Hamina	7	29	1486	7	33	1260	1
Amuri - Alasjärvi	12	127	2401	12	201	3202	1
Alasjärvi - Amuri	12	201	3202	12	127	2401	2
Veromies - Käpylä	45	3	430	45	1	3715	2
Muurala - Länsisalmi	50	2	4474	50	8	2490	1
Länsisalmi - Muurala	50	8	2490	50	2	4474	2
Westend - Katajaharju	51	4	300	51	2	1378	2
Otaniemi - Konala	101	2	741	101	6	1713	1
Pukinmäki - Otaniemi	101	7	2103	101	2	741	2
Olari - Kauniainen	102	1	970	102	3	2660	1
Pitäjänmäki - Varisto	120	2	60	120	3	5260	1
Konala - Pitäjänmäki	120	3	680	120	2	60	2
Vartioharju - Mellunmäki	170	3	1090	170	3	4165	1
Mellunmäki - Vartioharju	170	3	4165	170	3	1090	2

High level ideas for the alignment of events and conditions

High level ideas for the alignment of events and conditions on road sections selected based on the potential impact in road safety (green = most potential impact, grey = potential impact)



The table includes also references (circles and reference codes) to identified programmed development pilot projects, see chapter 4 for more details.

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